PORTLAND HARBOR STORMWATER STRATEGY

This document attempts to capture the conversations we've been having about our overall strategy for addressing stormwater as it relates to in-water risks and the ROD. This document will evolve and expand as we make progress in our efforts. The bold/italicized paragraphs are intended to help you connect this info back to the conversations we've been having or clarify important points.

OVERVIEW: The following outline captures the main points from the document that follows.

I. How will EPA determine that stormwater has been adequately controlled?

A. EPA will find that stormwater source control is adequate these if 3 objectives are met:
   1. Stormwater sources have been controlled via JSCS
   2. An administrative framework is in place to control stormwater in the future
   3. Any sites that pose unacceptable risk are being addressed under DEQ or EPA authority

II. How will the 3 objectives be met?

A. DEQ will ensure stormwater SW is controlled by:
   1. Identifying stormwater sources discharging to river
   2. Requiring source control as necessary
      a) Implement JSCS (screening)
      b) Consider recontamination potential (loading evaluation)
   3. As a final product, producing a comprehensive inventory of stormwater sites and the status of source control at those sites

B. DEQ will demonstrate that an effective administrative framework is in place by:
   1. Evaluating NPDES & MS4 permits relative to remedial objectives and determining whether additional controls are needed
   2. Developing/implementing additional controls if necessary

C. DEQ will identify and control sources posing unacceptable risk by:
   1. Evaluating loading
   2. Implementing additional source control measures where necessary

III. Data Needs and Considerations

A. Data will be needed to accomplish the following:
   1. Determining the relative significance of stormwater in PH
   2. Demonstrating effectiveness of source control measures
   3. Demonstrating the validity of overall stormwater strategy and methods used to evaluate it
   4. Making a case for additional control measures (e.g., permit) if necessary

B. The more significant stormwater is, the more data will be needed

C. Data collection should be iterative, i.e., we need preliminary data to know what additional data will be needed

D. Fate and Transport model could be a tool for evaluating stormwater impacts

E. No certainty yet about how solid and liquid fractions of stormwater will be addressed in RI/FS or how different spatial scales will be addressed

IV. How should we proceed?

1. Develop the "story" about the relative importance of stormwater in PH
2. Inventory key outfalls/sources within AOPCs (but postpone loading evaluation for now)
3. By Fall '06, develop data collection & management strategy to support overall effort

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I. AT THE TIME OF THE ROD, HOW WILL EPA DETERMINE WHETHER STORMWATER SOURCES HAVE BEEN ADEQUATELY ADDRESSED?

A. EPA will find that, as a whole, stormwater source control measures are adequate provided that each of the following objectives are met:

1. DEQ is ensuring that upland stormwater sources are controlled by implementing the Joint Source Control Strategy in timely and appropriate manner

2. An administrative framework is in place to ensure stormwater discharges will be perpetually managed to prevent or minimize risk

3. Sources found to pose an unacceptable risk of recontaminating the harbor are being addressed through DEQ's Clean Up or Clean Water Act authority or EPA's CERCLA authority

B. The ROD may identify individual upland sites as potential ongoing sources of contaminants but will indicate that these sources are being controlled per the efforts described above

II. HOW WILL THE THREE OBJECTIVES DESCRIBED ABOVE BE MET?

A. DEQ will ensure that upland stormwater sources are controlled by:

1. Identifying upland sources discharging contaminated stormwater into Portland Harbor. Sources of information include in-river sediment data, stormwater monitoring reports, the City's in-line sampling data, stormwater evaluations conducted at Portland Harbor cleanup sites and LWG Site Summary reports. [To date, this work has focused on Cleanup sites and sites in City outfall basins. We need to develop the workplan/timeline for addressing the other sites.]

2. Requiring RPs to implement source controls at sites that pose an unacceptable risk to the harbor or have the potential to recontaminate remediation sites

a) The first stage in this work involves implementation of the Joint Source Control Strategy. These efforts are aimed at preventing recontamination of river sediments by identifying and controlling sources of contaminants prior to issuance of the ROD by:

(1) analyzing catch basin solids and stormwater samples at upland sites to determine contaminant concentrations by conducting screening sampling during the '06-'07 water year (to the extent possible; some sites probably won't get to this until the '07-'08 water year),

(2) comparing these concentrations against Screening Level Values (SLVs)

(a) if concentrations of COIs are below or near SLVs, additional assessment/action may not be necessary at this time unless there is reason to believe the samples were not representative

(b) if concentrations of COIs exceed SLVs, DEQ will work with the RP to evaluate the need for additional source assessment and/or control measures and proceed as appropriate (Summer 2007)

(3) resampling stormwater at sites where source control measures have been implemented to determine what affect the measures had on the concentrations of contaminants in stormwater discharge, and undertaking additional investigation and/or source control measures if necessary ('07-'08 water year)

b) The second stage would informed by the in-water RI/FS and RD/RA. If those analyses indicate that certain stormwater outfalls have the potential to recontaminate the harbor or an AOPC, those outfalls may need to undergo a contaminant loading analysis and implement additional source control measures to prevent or reduce the risk of recontamination.

3. The end product of the overall source control effort will be an inventory and status of source control at Portland Harbor sites, possibly illustrated on a coded map of upland sites.
The JSCS-related work described above is underway and, in a sense, is separate* from the issues we have been discussing over the past few months. That is, the JSCS policy discussions and site decisions are being addressed in another venue. However, as we continue these "bigger picture" discussions and learn more about the effects of stormwater in Portland Harbor via the RI/FS-related studies and other sources of information, we may find that we need to circle back to the JSCS to make adjustments and/or undertake additional actions/data collection at upland sites or City outfalls.
One potential exception is the topic of effectiveness monitoring. Because we haven't yet defined what this means in exact terms, it's hard to distinguish what this means in the context of the JSCS vs. the in-river risk assessment. I will try to get something out to you on this topic in advance of the 27th to set things up for a discussion where we can (hopefully) clarify the issue and decide what we need to do. This discussion includes the question of the need for pre/post source control data.

B. DEQ will demonstrate that an administrative framework is in place to ensure stormwater discharges will be perpetually managed to prevent or minimize risk by:

1. Evaluating the effectiveness of current stormwater controls (e.g., NPDES Industrial Stormwater General Permit; Portland's Municipal Stormwater Permit) against in-water remedial objectives to determine whether expanded or additional controls are needed.

2. Develop and implement additional controls if necessary, and demonstrate, by the time that the ROD is issued, that an administrative framework is in place that will ensure adequate and ongoing stormwater control, and that the framework includes a feedback loop to allow for adaptive management in the event that control efforts are not achieving the expected results.
These discussions got underway several months ago but we recently decided to postpone further discussions for a few months until we have a better sense of the in-water remedial objectives and the data we will need to evaluate stormwater controls against those objectives.

C. DEQ will ensure that upland stormwater sources that pose an unacceptable risk are identified and controlled by:

1. Evaluating area-wide and site-specific loading of COIs to the harbor from stormwater outfalls as necessary to provide data for completing the RI/FS and RD/RA

2. Implementing additional source control measures and/or undertaking removal actions as necessary to reduce contaminant contributions to an acceptable level

This is largely what we've been focusing on in recent discussions, and much of the remainder of this document is aimed at addressing bullet #1.

III. WHAT ARE THE GENERAL CONSIDERATIONS WITH REGARDS TO DATA NEEDS FOR ACCOMPLISHING THE WORK DESCRIBED ABOVE?

A. In the long run, data will be needed to help accomplish the following objectives:

1. To answer the question of "what is the relative significance of stormwater in Portland Harbor?"

2. To demonstrate to RPs that source control measures undertaken on their sites are both necessary and effective

3. To demonstrate the validity of the stormwater strategy, the methods used to evaluate stormwater in the context of the RI/FS, and EPA's ROD as it relates to stormwater

4. To "make our case" for additional ongoing stormwater control measures, such as a Portland Harbor industrial stormwater permit, or demonstrate that such measures aren't necessary

B. Ultimately, the amount and types of data that are necessary is somewhat dependent upon the significance of stormwater as a source of contaminants to the harbor. That is, the more significant stormwater is as a source, the more data we'll need to support and ensure confidence in our decisions. We also need to understand the importance of stormwater relative to other sources of COIs in order to evaluate remedial alternatives.

C. The data collection strategy should be developed in a step-wise and iterative manner, balancing the need for timely data collection to support major milestones in the ROD timeline with the desire to minimize unnecessary expenditures for the collection of data. As data becomes available that provides insight into the relationship between stormwater and in-water risks, it will be used to inform the design of the next phase of the data collection strategy.

D. At this time, it appears that Bruce Hope's Fate and Transport model could be used to gain an understanding of the impacts of stormwater discharges on the harbor. However, it is not clear whether this model will be incorporated into the LWG's work or when that decision will be made. In addition, it's not clear whether the alternative models being considered by LWG would be able to provide answers to the stormwater questions.

E. At this time, there is uncertainty about how harbor-wide risks will be evaluated and it is unclear exactly how the water and sediment fractions of stormwater will be addressed or analyzed in the RI/FS. Therefore we are unable to address these issues with much specificity at this stage in our work.

IV. GIVEN ALL THIS, HOW SHOULD WE PROCEED?

The proposal being put forward for discussion on July 27 is to proceed on several fronts, as described below. Some of these ideas have evolved a bit since our last meeting, so I anticipate that much of our time on the 27th will be spent on catching everyone up and ensuring we're on the right track.

#1. Start assembling the pieces we need to "tell the story" of stormwater in the harbor so we can provide at least a rough idea of the significance of stormwater (relative to other contaminant sources) to inform our discussions/decisions as well as those of the LWG and others.

To do this, we'd need to decide upon a method(s) for using existing and/or literature data to characterize Portland Harbor stormwater. Some potential approaches that we've discussed include:

- using the City's runoff model to estimate runoff and TSS loading, and developing a correlation between TSS and risk drivers
- compiling stormwater data from PH sites and breaking it out by commercial or industrial sectors to characterize the concentrations of COIs in runoff from those sites

We'd also need to look to the LWG or other sources to get whatever information is available to describe non-stormwater sources/loads of COIs (e.g., upstream, background, etc.).

Finally, we'd need a way to describe the fate of the contaminants in the river in order to evaluate recontamination risk. One thought is to use Bruce Hope's Fate and Transport model as a tool for evaluating the effects of each source on river sediment and/or water, and how these differ throughout the harbor. Of course, his model has limitations and it's not known whether is will ultimately be a part of the LWG's work.

Questions for Discussion/Decision:

- *Does it make sense for us to move ahead with this work, in spite of the fact that we could potentially get somewhat off track from where the LWG is headed, in order to have something to say about stormwater sooner rather than later?*
- *Should we consider using Bruce's model, in spite of the drawbacks and uncertainties? If we do, who pays for Bruce's time (assuming he has time)? Do we need LWG signoff?*

#2. Continue to inventory key stormwater outfalls within AOPCs to ensure that we are addressing (or have plans to address) source control needs at significant upland sites.

Tom, Linda, Dawn and I reviewed the AOPCs and will provide a cursory overview of our observations on the 27th.

In previous meetings, we've talked about the potential need for mass loading data to evaluate recontamination risk, and possibly beginning to gather that data this winter at significant stormwater outfalls in AOPCs. Upon further reflection, it seems that it may be appropriate to postpone this data collection until next year or later.

Here's the rationale for postponing….

The LWG has not made any decisions about how a recontamination analysis would be done, so there is no way of knowing what data would be needed or how it would be used. Bruce Hope's model could foreseeably be a tool for conducting these analyses, but we don't know if it will be adopted by the LWG.* And, at this point in time, there is no indication that recontamination analyses would take place any sooner than the RD/RA phase. If that's the case, there's no rush for the data.

*That said - if we decide to use Bruce's model to help tell the stormwater "story," as suggested above, we could certainly use it to conduct our own recontamination analyses. But there is no pressing need to collect additional loading data at this time to do those analyses. It makes sense to run the model using extrapolated or hypothetical data to better understand the system before deciding whether more data is needed.

…and a proposal to do something else.

Our initial review of the AOPCs proved to be a useful exercise in that it forced us to scrutinize our efforts in these areas and ask ourselves whether we're overlooking anything important. For example: Do any of the AOPCs contain closed ECSI sites that warrant a revisit? Are there obvious data gaps, such as characterization of contaminants from ongoing overwater activities, that we need to address?

The proposal is to proceed with our inventory of AOPCs in order to develop a brief synopsis of the key stormwater issues, status of source control activities, and priority needs for each AOPC. These summaries will provide us with a means for tracking and prioritizing our work in these areas, and may ultimately help address stormwater questions that arise in the context of the RI/FS or RD/RA.

Questions for Discussion/Decision:

- *Do you agree with postponing the collection of loading data until after this winter?*
- *Are the AOPC summaries something worth spending our time on?*

#3. By fall 2006, flesh out a data collection and management strategy to support our overall stormwater effort.

Most of the items described above involve some amount of data collection or "mining" of existing data. These needs will be more thoroughly evaluated over the summer with the goal of having a well-developed data collection and management strategy by the fall. The strategy will be developed with an eye toward identifying opportunities to "kill several birds with one stone" by developing it with several objectives in mind.

EPA is getting the ball rolling on this topic by contracting with Parametrix to develop a database to support the source control effort, and has invited DEQ's and COP's input for the database design.